## Appendix A

# National Sediment Inventory Field Description

The National Sediment Inventory (NSI) is a national compilation of readily available data that could be used to evaluate the incidence of sediment contamination throughout the United States. Data sets with sediment chemistry, tissue residue, and toxicity data collected from 1980 through 1999 are included in the NSI. In all, data for more than 50,000 stations and 4.6 million analytical observations have been compiled. A summary of the data types available in the NSI is provided below.

**Sediment chemistry.** Sediment chemistry data include detailed analytical results, analyte sampled, sampling date, qualifier for concentration, field and laboratory replication identifier, core depths, and grain size information. Percent organic carbon and acid-volatile sulfide content of sediments are also included when available.

**Tissue residue.** Tissue residue data include detailed analytical results, analyte sampled, species, sex, tissue type, length, qualifier for concentration, field and laboratory replication identifier, and weight.

**Toxicity.** Toxicity data include test species, dilution, endpoints (e.g., mortality), measured effect value, control-adjusted value, and test duration. Solid-phase and elutriate data are provided when available.

Table A-1 presents the total number of sampling stations at which each of these parameters was measured and the number of sampling stations for which coordinates (latitude and longitude) were available.

The NSI data are contained in a series of tables (see Table A-2) that correspond to the different data types described above. This organization is largely derived from NOAA's Watershed Database Management System. The purpose of this coordination between the NOAA Watershed Database Management System and the NSI is to facilitate data sharing. The primary table in the NSI is the station table. Each record in the table corresponds to a unique sampling station. The records in the station table can be related to tables for each type of data, such as sediment chemistry data or tissue residue data. These tables can then be related to additional look-up tables that include ancillary information such as chemical or species names. Figure A-1 illustrates the relationship between the station, sediment chemistry, tissue residue, and toxicity tables, and the related look-up tables.

**Table A-1. Number of Sampling Stations with Data Included in the NSI Evaluation.**

| Measurement Parameter | Total Number of Stations | Stations with Coordinates | |
|---|---|---|---|
| | | Number of Stations | Percent of Total Number of Stations with Coordinates[a] |
| Sediment Chemistry | 40,335 | 36,684 | 81 |
| TOC | 16,407 | 13,936 | 31 |
| AVS | 2,714 | 2,172 | 5 |
| Tissue Residue | 11,384 | 10,632 | 23 |
| Toxicity | 6,238 | 4,510 | 10 |
| Elutriate Phase | 229 | | |
| Solid Phase | 10,980 | | |
| Sediment Chemistry and Tissue Residue | 3,110 | 3,078 | 7 |
| Sediment Chemistry and Toxicity | 5892 | 4386 | 10 |
| Sediment Chemistry, Tissue Residue, and Toxicity | 112 | 112 | < 1 |

[a]Total number of stations with coordinates = 45,353.

**Table A-2. Data Tables Available in the NSI.**

| Table Name | Table Description | Table Name | Table Description |
|---|---|---|---|
| (1)SITE | Site | (5c)CHEMTISS | Tissue residue |
| (2)STUDY | Study | (6)BIOSUMM | Biotoxicity |
| (3a)STATION | Station | (7a)BMASTER | Bioassay type |
| (3b)STUDYNOT | Study notes | (7b)BIO_INFO | Bioassay information |
| (3c)STUDYREF | Study reference | (8a)CHEMDICT | Dictionary of chemical |
| (4a)SAMPLE | Sediment sample | (8b)QUALIFY | Concentration qualifier |
| (4b)SMPSEDSB | Sediment core sample | (8c)SPECIES | Dictionary of species |
| (4c)SMPTISS | Tissue sample | (8d)TESTDICT | Dictionary of bioassays |
| (5a)CHEM | Surface sediment | (8e)TISSTYPE | Type of tissue |
| (5b)CHEMSB | Sediment core data | | |

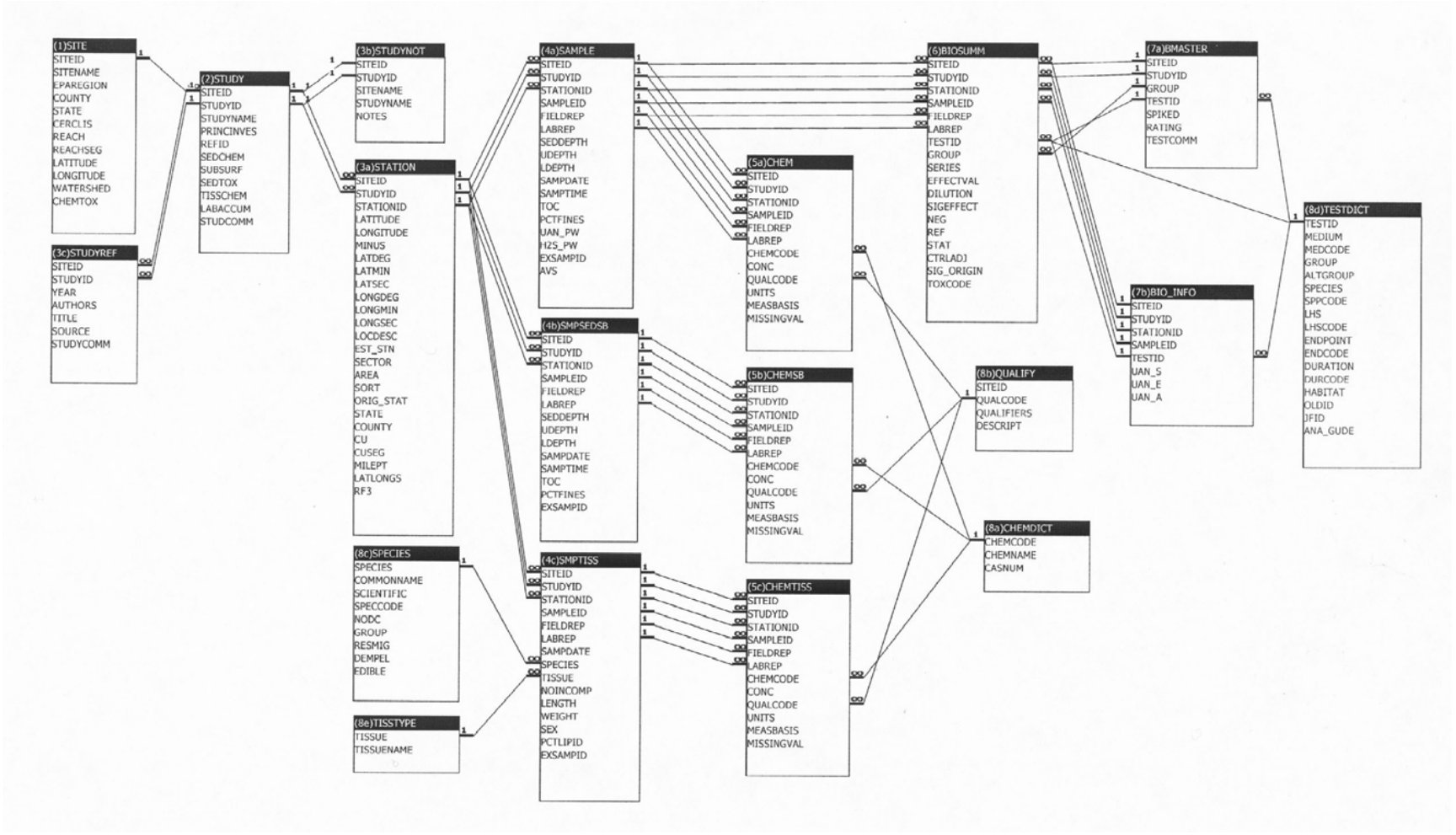


**Figure A-1. Relationship between the station, sediment chemistry, tissue residue, and toxicity tables, and the related look-up tables.**

The remainder of this section contains a listing of the field names and descriptions associated with each data table in the NSI.

| **(1)SITE** | **Site** |
|---|---|
| SITEID | Site identifier |
| SITENAME | Descriptive name of site |
| EPAREGION | USEPA region of site location: 11 for Canada |
| COUNTY | County |
| STATE | State |
| CERCLIS | CERCLIS number for site |
| REACH | USGS 8-digit hydrologic unit code |
| REACHSEG | USEPA River Reach (v1) segment number for site |
| LATITUDE | General latitude for site location |
| LONGITUDE | General longitude for site location |
| WATERSHED | Watershed name for site location |
| CHEMTOX | Sediment chemistry and toxicity data for study, T or F? |

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| **(2)STUDY** | **Study** |
|---|---|
| SITEID | Site identifier |
| STUDYID | Study identifier code |
| STUDYNAME | Short name for study |
| PRINCINVES | Study investigators |
| REFID | Internal reference ID |
| SEDCHEM | Surface sediment chemistry data, T or F? |
| SUBSURF | Subsurface sediment chemistry data, T or F? |
| SEDTOX | Sediment toxicity data, T or F? |
| TISSCHEM | Tissue chemistry for study, T or F? |
| LABACCUM | Tissue data from lab bioaccumulation tests, T or F? |
| STUDCOMM | Study comments |

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| **(3a)STATION** | **Station** |
|---|---|
| SITEID | Site identifier |
| STUDYID | Study identifier code |
| STATIONID | Station identifier code |
| LATITUDE | Station latitude expressed in decimal degrees |
| LONGITUDE | Station longitude expressed in decimal degrees |
| MINUS | Internal use (to support conversion of longitude) |
| LATDEG | Station location expressed in degrees of latitude |
| LATMIN | Station location expressed in minutes of latitude |
| LATSEC | Station location expressed in seconds of latitude |
| LONGDEG | Station location expressed in degrees of longitude |
| LONGMIN | Station location expressed in minutes of longitude |
| LONGSEC | Station location expressed in seconds of longitude |
| LOCDESC | Station location description |
| EST_STN | Indication of derivation of latitude and longitude; selected from "reported," "plotted," or "assigned" |
| SECTOR | Internal use |
| AREA | Internal use |
| SORT | Internal use |

| | |
|---|---|
| ORIG_STAT | Original station identifier code assigned by source data set |
| STATE | State |
| COUNTY | County |
| CU | USGS 8-digit hydrologic unit code |
| CUSEG | USEPA River Reach (v1) segment number |
| MILEPT | USEPA River Reach (v1) mile point |
| LATLONGS | Source for reported latitude and longitude |
| RF3 | USEPA River Reach (v3) segment |

| **(3b)STUDYNOT** | **Study notes** |
|---|---|
| SITEID | Site identifier |
| STUDYID | Study identifier code |
| SITENAME | Descriptive name for site |
| STUDYNAME | Short name for study |
| NOTES | Memo field containing study notes |

| **(3c)STUDYREF** | **Study reference** |
|---|---|
| SITEID | Site identifier |
| STUDYID | Study identifier code |
| YEAR | Year of report |
| AUTHORS | Report authors |
| TITLE | Report title |
| SOURCE | Report source |
| STUDYCOMM | Short comment on study |

| **(4a)SAMPLE** | **Sediment sample** |
|---|---|
| SITEID | Site identifier |
| STUDYID | Study identifier |
| STATIONID | Station identifier |
| SAMPLEID | Sample identifier |
| FIELDREP | Field replicate number |
| LABREP | Laboratory replicate number |
| SEDDEPTH | Depth of sediment sample |
| UDEPTH | Upper depth of sediment collection in centimeters |
| LDEPTH | Lower depth of sediment collection in centimeters |
| SAMPDATE | Date sample collected |
| SAMPTIME | Time sample collected |
| TOC | Total organic carbon as percent |
| PCTFINES | Percent fines |
| UAN_PW | Un-ionized ammonia in porewater |
| H2S_PW | Hydrogen sulfide in pore water |
| EXSAMPID | Investigators' sample identifier |
| AVS | Acid-volatile sulfide in µmol/g sediment |

| **(4b)SMPSEDSB** | **Sediment core sample** |
|---|---|
| SITEID | Site identifier |
| STUDYID | Study identifier |
| STATIONID | Station identifier |
| SAMPLEID | Sample identifier |
| FIELDREP | Field replicate number |
| LABREP | Laboratory replicate number |
| SEDDEPTH | Depth of sediment sample |
| UDEPTH | Upper depth of sediment collection in centimeters |
| LDEPTH | Lower depth of sediment collection in centimeters |
| SAMPDATE | Date sample collected |
| SAMPTIME | Time sample collected |
| TOC | Total organic carbon as percent |
| PCTFINES | Percent fines |
| EXSAMPID | Investigators' sample identifier |

| **(4c)SMPTISS** | **Tissue sample** |
|---|---|
| SITEID | Site identifier |
| STUDYID | Study identifier |
| STATIONID | Station identifier |
| SAMPLEID | Sample identifier |
| FIELDREP | Field replicate number |
| LABREP | Laboratory replicate number |
| SAMPDATE | Date sample collected |
| SPECIES | Code identifying species collected |
| TISSUE | Code identifying tissue collected |
| NOINCOMP | Number of organisms in composite |
| LENGTH | Length of organism in cm |
| WEIGHT | Weight of organism in grams |
| SEX | Sex of organism |
| PCTLIPID | Percent lipid |
| EXSAMPID | Investigators' sample identifier |

| **(5a)CHEM** | **Surface sediment chemistry** |
|---|---|
| SITEID | Site identifier |
| STUDYID | Study identifier |
| STATIONID | Station identifier |
| SAMPLEID | Sample identifier |
| FIELDREP | Field replicate number |
| LABREP | Laboratory replicate number |
| CHEMCODE | Abbreviated chemical name |
| CONC | Measured concentration |
| QUALCODE | Assigned qualifier for concentration |
| UNITS | Units of concentration for chemical |
| MEASBASIS | Wet or dry weight indication |
| MISSINGVAL | Data missing, Y or N? |

| **(5b)CHEMSB** | **Sediment core data** |
|---|---|
| SITEID | Site identifier |
| STUDYID | Study identifier |
| STATIONID | Station identifier |
| SAMPLEID | Sample identifier |
| FIELDREP | Field replicate number |
| LABREP | Laboratory replicate number |
| CHEMCODE | Abbreviated chemical name |
| CONC | Measured concentration |
| QUALCODE | Assigned qualifier for concentration |
| UNITS | Units of concentration for chemical |
| MEASBASIS | Wet or dry weight indication |
| MISSINGVAL | Data missing, Y or N? |

| **(5c)CHEMTISS** | **Tissue residue** |
|---|---|
| SITEID | Site identifier |
| STUDYID | Study identifier |
| STATIONID | Station identifier |
| SAMPLEID | Sample identifier |
| FIELDREP | Field replicate number |
| LABREP | Laboratory replicate number |
| CHEMCODE | Abbreviated chemical name |
| CONC | Measured concentration |
| QUALCODE | Assigned qualifier for concentration |
| UNITS | Units of concentration for chemical |
| MEASBASIS | Wet or dry weight indication |
| MISSINGVAL | Data missing, Y or N? |

| **(6)BIOSUMM** | **Biotoxicity** |
|---|---|
| SITEID | Site identifier |
| STUDYID | Study identifier |
| STATIONID | Station identifier |
| SAMPLEID | Sample identifier |
| FIELDREP | Field replicate number |
| LABREP | Laboratory replicate number |
| TESTID | Bioassay test code |
| GROUP | Bioassay test grouping |
| SERIES | Bioassay test series number |
| EFFECTVAL | Measured effect value |
| DILUTION | Dilution value |
| SIGEFFECT | Was effect significant, Y or N? |
| NEG | Negative control, Y or N? |
| REF | Reference sample, Y or N? |
| STAT | Used for statistical comparison, Y or N? |
| CTRLADJ | Control adjusted effect value |
| SIG_ORIGN | Original code from investigator for significant effect |
| TOXCODE | Character designation for toxic effect (T for toxic and N for nontoxic) |

| **(7a)BMASTER** | **Bioassay type** |
|---|---|
| SITEID | Site identifier |
| STUDYID | Study identifier |
| GROUP | Bioassay test grouping |
| TESTID | Bioassay test code |
| SPIKED | Sediment spiked with contaminant, Y or N? |
| RATING | Rating of bioassay test |
| TESTCOMM | Bioassay test comments |

| **(7b)BIO_INFO** | **Bioassay information** |
|---|---|
| SITEID | Site identifier |
| STUDYID | Study identifier |
| STATIONID | Station identifier |
| SAMPLEID | Sample identifier |
| TESTID | Bioassay test code |
| UAN_S | Un-ionized ammonia in sediment |
| UAN_E | Un-ionized ammonia in elutriate |
| UAN_A | Un-ionized ammonia |

| **(8a)CHEMDICT** | **Dictionary of chemical codes** |
|---|---|
| CHEMCODE | Abbreviated chemical name |
| CHEMNAME | Full chemical name |
| CASNUM | CAS number |

| **(8b)QUALIFY** | **Concentration qualifier** |
|---|---|
| SITEID | Site identifier |
| QUALCODE | Assigned qualifier for concentration |
| QUALIFIERS | Not used |
| DESCRIPT | Description of QUALCODE |

| **(8c)SPECIES** | **Dictionary of species** |
|---|---|
| SPECIES | Species code |
| COMMONNAME | Commonly used name for organism |
| SCIENTIFIC | Scientific name for organism |
| SPECCODE | Numeric species code |
| NODC | 10-digit NODC code |
| GROUP | Species grouping |
| RESMIG | Whether species is resident or migratory |
| DEMPEL | Whether species is demersal or pelagic |
| EDIBLE | Whether species is edible by human populations |

| **(8d)TESTDICT** | **Dictionary of bioassays** |
|---|---|
| TESTID | 12-digit bioassay test code |
| MEDIUM | Medium tested |
| MEDCODE | 2-digit code for medium tested |
| GROUP | Bioassay species grouping |

| | |
|---|---|
| ALTGROUP | Alternate bioassay species grouping |
| SPECIES | Bioassay organism |
| SPPCODE | 3-digit code for bioassay organism |
| LHS | Life history stage of organism |
| LHSCODE | Single digit code for life history stage |
| ENDPOINT | Bioassay test endpoint |
| ENDCODE | 2-digit code for test endpoint |
| DURATION | Duration of test |
| DURCODE | 4-digit code for duration of test |
| HABITAT | Habitat of test organism |
| OLDID | Formerly assigned test code |
| JFID | Not used (old identification code) |
| ANA_GUDE | Test included or not in NSI evaluation |

| **(8e)TISSTYPE** | **Type of tissue** |
|---|---|
| TISSUE | Description code of tissue collected |
| TISSUENAME | Description of tissue collected |